



The **CRUSHED STONE JOURNAL**

PUBLISHED QUARTERLY

In This Issue

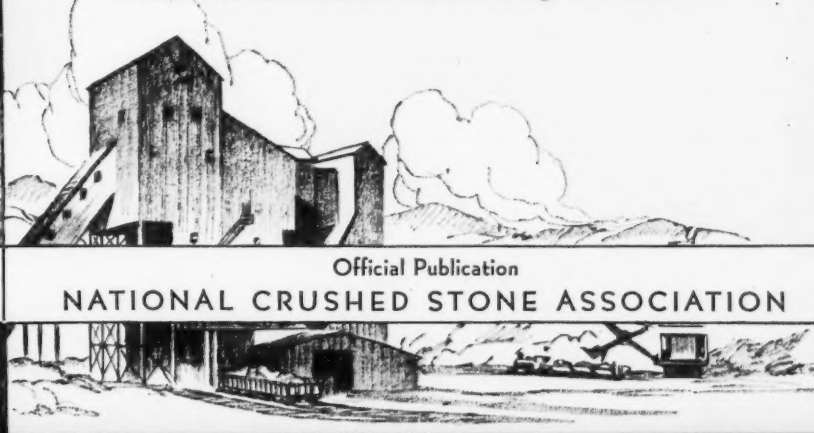
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**Twenty-Eighth Annual Convention
Re-Elects President Earnshaw**

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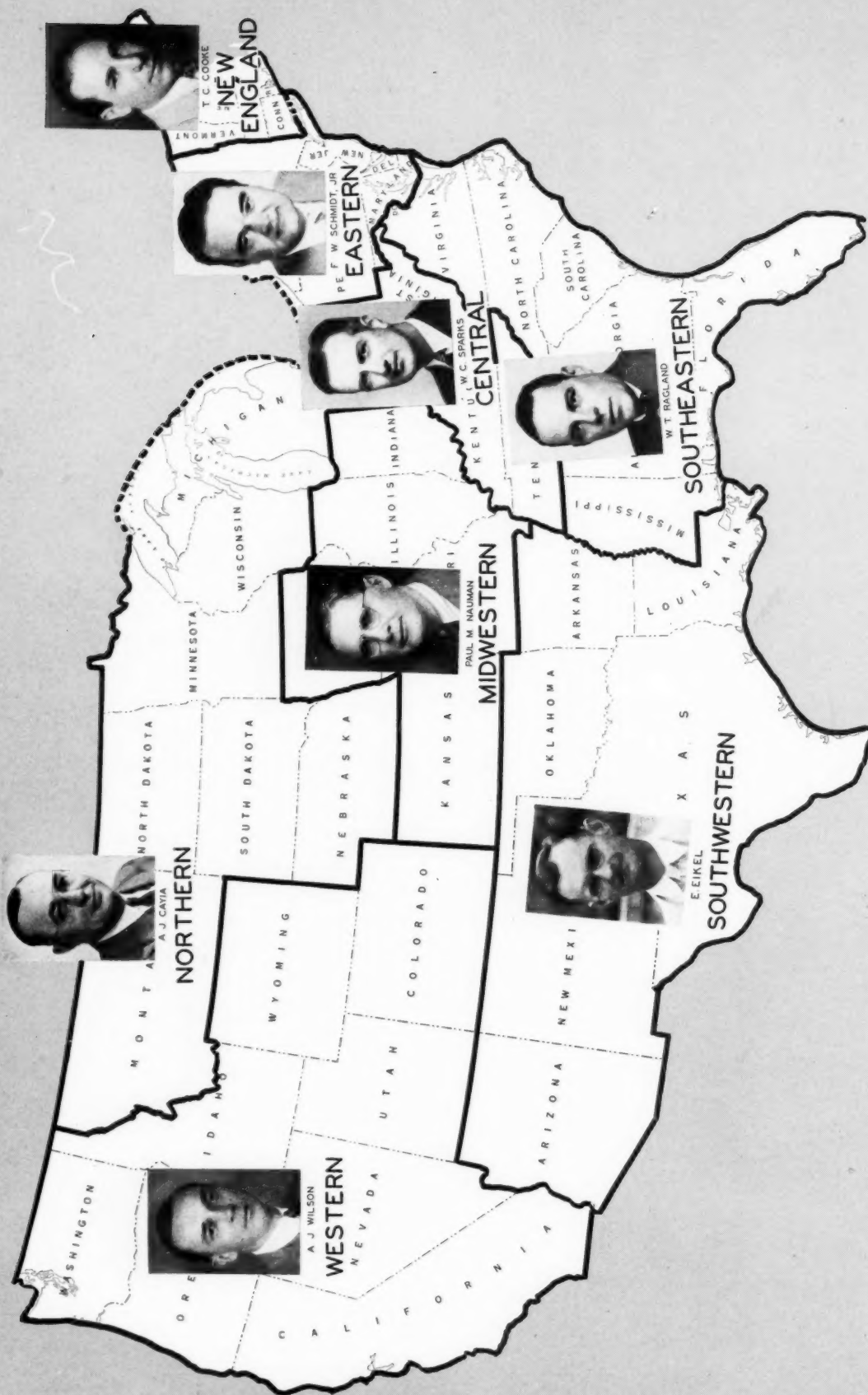
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What the Seabees are Doing for You

March • 1945



Official Publication
NATIONAL CRUSHED STONE ASSOCIATION

REGIONAL MAP—NATIONAL CRUSHED STONE ASSOCIATION (REVISED 1944)



The Crushed Stone Journal

Official Publication of the NATIONAL CRUSHED STONE ASSOCIATION

J. R. BOYD, Editor

NATIONAL CRUSHED STONE ASSOCIATION



1735 14th St., N. W.
Washington 9, D. C.

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Contents



Twenty-Eighth Annual Convention Re-Elects President Earnshaw	3
The Postwar Construction Program —Major General Philip B. Fleming	9
A National Program for Airport Construction —William A. M. Burden	13
What the Seabees are Doing for You —C. A. Sanborn	16





FRED O. EARNSHAW

**President, Carbon Limestone Company, Youngs-
town, Ohio, re-elected President of the National
Crushed Stone Association at its 28th Annual
Convention**

THE CRUSHED STONE JOURNAL

WASHINGTON, D. C.

Vol. XX No. 1

PUBLISHED QUARTERLY

MARCH, 1945

Twenty-Eighth Annual Convention Re-Elects President Earnshaw

MILO A. NICE continues as Chairman of Manufacturers' Division

THE Twenty-eighth Annual Convention of the National Crushed Stone Association, held at the New Yorker Hotel, New York City, on January 29, 30, and 31, 1945, was considered by those present outstandingly successful in accomplishing its principal objective of bringing together crushed stone producers from all sections of the country, in order that they might better and more comprehensively be informed concerning the industry's problems with respect to the war effort and to the postwar period which lies ahead. The more than five hundred members of the industry who were in attendance convincingly evidenced their keen interest in the various papers and discussions scheduled on the program, by the gratifyingly large number present at each session and the promptness with which they assembled.

While space limitations will not permit publication of the convention proceedings in their entirety, as in the past, the discussions of outstanding interest and value will be carried in the Journal or printed for direct distribution.

Election of Officers and Board of Directors

At the business session on Tuesday morning the election of officers took place. In accord with the report of the Nominating Committee, submitted by its acting chairman, D. L. Williams (Henry Rodes, Chairman of the Committee having been unavoidably prevented from attending the convention), members of the Board and Regional Vice Presidents as listed below were unanimously elected. New members of the Board include J. E. Bryan, Bryan-

Monroe Co., Raleigh, N. C.; W. N. Carter, National Stone Co., Joliet, Ill.; E. E. Haapala, Zumbrota, Minn.; R. G. L. Harstone, Canada Crushed Stone Ltd., Hamilton, Ontario, Canada; J. L. Heimlich, LeRoy Lime & Crushed Stone Corp., LeRoy, N. Y.; J. C. Lauber, Trap Rock Co., Minneapolis, Minn.; and Howard M. Thomas, Fort Scott Hydraulic Cement Co., Fort Scott, Kansas.

Board of Directors

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Wm. M. Andrews, New Castle Lime and Stone Co., New Castle, Pa.
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E. Eikel, Servtex Materials Co., New Braunfels, Texas
Wilson P. Foss, Jr., New York Trap Rock Corp., New York, N. Y.
Otho M. Graves, The General Crushed Stone Co., Easton, Pa.
E. E. Haapala, Zumbrota, Minn.
Geo. F. Hammerschmidt, Elmhurst-Chicago Stone Co., Elmhurst, Ill.



G. A. AUSTIN
Consolidated
Quarries Corp.,
Decatur, Ga.



FRED O. EARNSHAW
Carbon Limestone Co.
Youngstown, Ohio



L. J. BOXLEY
Blue Ridge Stone
Corp.,
Roanoke, Va.



THEO. C. COOKE
Lynn Sand and
Stone Co.
Swampscott, Mass.

EXECUTIVE COMMITTEE

of the
NATIONAL CRUSHED STONE ASSOCIATION
elected by the Board of Directors at its meeting in
New York City on January 31, 1945



OTTO M. GRAVES
General Crushed
Stone Co., Easton, Pa.



MILO A. NICE
Hercules Powder Co.
Wilmington, Del.



RUSSELL RAREY
Marble Cliff Quarries
Co., Columbus, Ohio



W. F. WISE
Southwest Stone Co.
Dallas, Texas



A. L. WORTHEN
New Haven Trap
Rock Co., New
Haven, Conn.

AMONG NEWLY ELECTED TO BOARD OF DIRECTORS



J. E. BRYAN



E. E. HAAPALA



R. G. L. HARSTONE



J. L. HEIMLICH



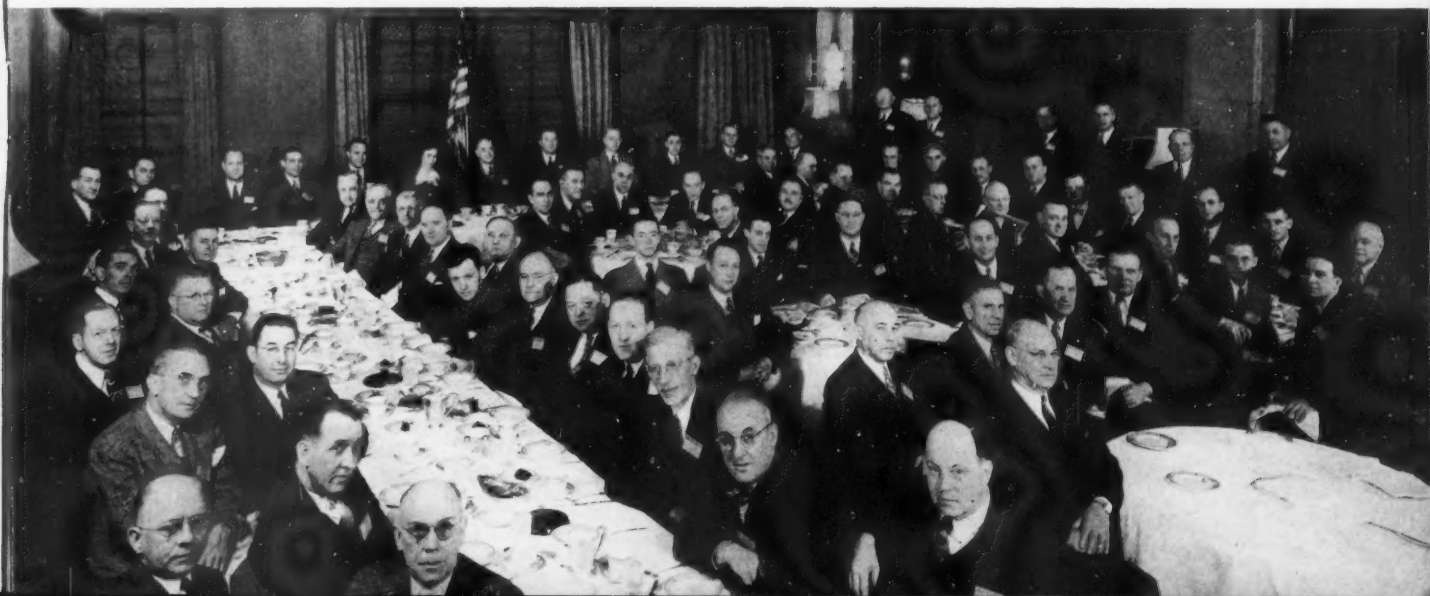
JOHN C. LAUBER



HOWARD M. THOMAS

- R. G. L. Harstone, Canada Crushed Stone, Ltd., Hamilton, Ontario, Canada
 J. L. Heimlich, LeRoy Lime & Stone Corp., LeRoy, N. Y.
 R. P. Immel, American Limestone Co., Knoxville, Tenn.
 E. J. Krause, Columbia Quarry Co., St. Louis, Mo.
 J. C. Lauber, Trap Rock Co., Minneapolis, Minn.
 M. E. McLean, East St. Louis Stone Co., East St. Louis, Ill.
 Paul M. Nauman, Dubuque Stone Products Co., Dubuque, Iowa
 W. T. Ragland, Superior Stone Co., Raleigh, N. C.
 H. E. Rainer, Federal Crushed Stone Corp., Buffalo, N. Y.
 Russell Rarey, Marble Cliff Quarries Co., Columbus, Ohio
 John Rice, The General Crushed Stone Co., Easton, Pa.
 J. A. Rigg, Acme Limestone Co., Fort Spring, W. Va.
 H. E. Rodes, Franklin Limestone Co., Nashville, Tenn.
 Dan Sanborn, Lehigh Stone Co., Kankakee, Ill.
 James Savage, Buffalo Crushed Stone Corp., Buffalo, N. Y.
 F. W. Schmidt, Jr., North Jersey Quarry Co., Morristown, N. J.
 W. C. Sparks, Cedar Bluff Quarry, Princeton, Ky.
 O. M. Stull, Liberty Limestone Corp., Buchanan, Va.
 Howard M. Thomas, Fort Scott Hydraulic Cement Co., Fort Scott, Kansas
 W. H. Wallace, Wallace Stone Co., Bay Port, Mich.
 E. K. Webster, Frontier Stone Products, Inc., Lockport, N. Y.
 W. S. Weston, Weston & Brooker Co., Columbia, S. C.
 D. L. Williams, Virginian Limestone Corp., Ripplemead, Va.
 A. J. Wilson, Granite Rock Co., Watsonville, Calif.
 W. F. Wise, Southwest Stone Co., Dallas, Texas
 A. L. Worthen, New Haven Trap Rock Co., New Haven, Conn.

Manufacturers' Division Breakfast



Representatives of the Manufacturers' Division on the Board

Milo A. Nice, Hercules Powder Co., Wilmington, Del.
J. Harper Fulkerson, Cross Engineering Co., Carbon-
dale, Pa.
L. W. Shugg, General Electric Co., Schenectady,
N. Y.

Honorary Members

A. J. Blair, Annapolis, Md.
Stirling Tomkins, Overseas,
Red Cross
Harold Williams, Boston,
Mass.

With the exception of Mr. Eikel, who was elected for the Southwestern Region in place of Mr. Wise, the following Regional Vice Presidents, on recommendation of the Nominating Committee, were continued in office for another year.

Eastern—F. W. SCHMIDT, JR.
New England—T. C. COOKE
Midwestern—PAUL M. NAUMAN
Southeastern—W. T. RAGLAND
Central—W. C. SPARKS
Northern—A. J. CAYIA
Western—A. J. WILSON
Southwestern—E. EIKEL

Fred O. Earnshaw Re-elected President

In concluding the report of the Nominating Committee, Mr. Williams said, "I am deeply honored and very proud to present to you on behalf of your committee, for the President of the National Crushed Stone Association for another year, F. O. Earnshaw of Youngstown, Ohio." With enthusiastic applause the convention instructed the Secretary to cast a unanimous ballot for Mr. Earnshaw's re-election.

Executive Committee Elected by Board of Directors

At a meeting of the newly elected Board of Directors, held on January 31, the following were



JAMES SAVAGE
Treasurer



AMONG THOSE PRESENT FROM THE GENERAL CRUSHED STONE COMPANY



THE TWENTY-EIGHTH ANNUAL BANQUET



elected to the Executive Committee for the ensuing year:

F. O. EARNSHAW, *Chairman*

G. A. AUSTIN	MILO A. NICE
L. J. BOXLEY	RUSSELL RAREY
T. C. COOKE	W. F. WISE
OTHO M. GRAVES	A. L. WORTHEN

Also, James Savage was elected Treasurer; A. T. Goldbeck, Engineering Director; and J. R. Boyd, Secretary and Administrative Director.

Milo A. Nice Re-Elected Chairman of Manufacturers' Division

At the Breakfast Meeting of the Manufacturers' Division, held at 8:30, Tuesday morning, January 30, with some eighty representatives of the Division in attendance, Milo A. Nice was enthusiastically re-elected as Chairman of the Division for another year in appropriate recognition of his outstanding service to the Division during his first term of office. Vice Chairmen and members of the Board of Directors of the Division were elected as follows:

Vice Chairmen

COTT FARRELL	L. C. MOSLEY
R. C. JOHNSON	C. H. ROBERTS
J. CRAIG McLANAHAN	J. B. TERBELL

Board of Directors

Milo A. Nice, *Chairman*, Hercules Powder Co., Wilmington, Del.
 E. C. Anderson, Kensington Steel Co., Chicago, Ill.
 A. E. Conover, Robins Conveyors, Inc., Passaic, N. J.
 Bryant Currier, The W. S. Tyler Co., Cleveland, Ohio
 W. C. Davis, Atlas Powder Co., Wilmington, Del.
 Irving Deister, Deister Machine Co., Fort Wayne, Ind.
 M. A. Eiben, Northern Blower Co., Cleveland, Ohio
 S. S. Ellsworth, Ensign-Bickford Co., Simsbury, Conn.
 Cott Farrell, Easton Car & Construction Co., Easton, Pa.
 J. Harper Fulkerson, Cross Engineering Co., Carbon-dale, Pa.
 E. J. Goes, Koehring Co., Milwaukee, Wis.
 J. H. Huether, General Electric Co., Schenectady, N. Y.
 C. S. Huntington, Link-Belt Co., Chicago, Ill.
 R. C. Johnson, Simplicity Engineering Co., Durand, Mich.
 B. R. Maloney, E. I. du Pont de Nemours & Co., New York City
 J. Craig McLanahan, McLanahan & Stone Corp., Hollidaysburg, Pa.
 L. C. Mosley, Marion Steam Shovel Co., Marion, Ohio

R. M. Murdock, The Frog, Switch & Mfg. Co., New York City
 F. O. Reedy, Kennedy-Van Saun Mfg. & Eng. Co., New York City
 C. H. Roberts, Traylor Eng. & Mfg. Co., Allentown, Pa.
 Bruce G. Shotton, Hendrick Mfg. Co., Pittsburgh, Pa.
 F. C. Tennant, The Texas Co., New York City
 J. B. Terbell, American Manganese Steel Division, The American Brake Shoe Co., New York City.
 J. A. Trainor, Taylor-Wharton Iron & Steel Co., High Bridge, N. J.
 R. E. Wiley, American Cyanamid & Chemical Corp., New York City
 Roy Wills, Lima Locomotive Works, Lima, Ohio
 F. O. Wyse, Bucyrus-Erie Co., South Milwaukee, Wis.

Director of Exhibits

L. W. Shugg, General Electric Co., Schenectady, N. Y.

In closing it is a pleasure to acknowledge our very deep appreciation to the many able speakers who contributed to the convention program and to thank our presiding officers and committee personnel for the helpful assistance rendered in making the meeting such an unqualified success.

Our special thanks are due the General Electric Company, for it was through its courtesy that we enjoyed the unusual privilege of hearing C. M. Ripley give his highly entertaining and informative presentation, "Power for War and Peace," before the Tuesday luncheon.

We are also indebted to the Hotel New Yorker Management and its entire staff for their excellent cooperation in rendering the best possible service under difficult circumstances to those in attendance at the meeting and to the Association staff.



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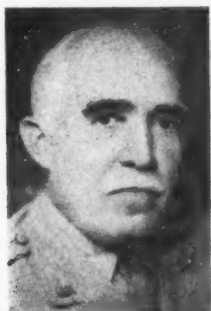
**BUY
BONDS
NOW**

☆ ☆ ☆

The Postwar Construction Program¹

By MAJOR GENERAL PHILIP B. FLEMING

Administrator, Federal Works Agency
Washington, D. C.



MANY years ago, when the new horseless carriage was beginning to be accepted as something more than a scientific toy, the hill-climbing contest in our town was an annual event.

The hill was just on the edge of town and it wasn't much of a hill. You could drive up in high today, without realizing that you were on a grade at all.

On a bright Sunday morning in spring the boys would get out in their Wintons, Oldsmobiles and Stanley Steamers and line up at the bottom of the incline. They would be off at the crack of a pistol, and the fellow who got to the top first—and sometimes none of them could get up—would be awarded the two-handled loving cup to have and to hold for another year.

That we can smile today at the mention of the hill-climbing contest is some measure of the distance we have come since then. The mechanical problems of the automobile have been licked. Thirty years ago the man foolhardy enough, and rich enough, to by an automobile had to be a pretty good journeyman mechanic. He had to know what made it run and be prepared at any minute to "get out and get under." Today I suppose not one man in a hundred has more than a hazy idea of the construction of his motor. All he knows, or needs to know, is that almost unlimited power awaits his bidding at the pressing of a button or the turn of a lever.

But the engineers in their search for perfection had some powerful assistance, although they may have been largely unconscious of it. They had the assistance of the road builders without whose services their work would have been largely in vain. It was the road builders who laced the country with hard roads, and without those hard roads the automobile industry, I feel safe in saying, would still be numbered among our infant handcraft industries. It was the hard road that made automobile ownership

• Governmental plans for postwar construction are of the most vital concern to the crushed stone industry. In the following the Government's foremost authority in the field outlines a comprehensive view of such plans.

feasible, and that, in turn, laid the ground work for mass production.

Now, back in those early days there was a good deal of resistance to road building. Good roads meant higher taxes, and taxes already were too high. Indeed, from the standpoint of the individual taxpayer, taxes always are too high. Yet, the fact was that it was the same good roads which gave multitudes of people the money with which to pay taxes. Good roads, and the automobile production which they stimulated, directly assisted in providing jobs in the manufacture of automobiles and parts, and other jobs in the production of tires, glass, steel and leather for upholstery, for growing millions of men and women. The tourist camp business arose and provided good incomes for many additional thousands. The petroleum business took on a new lease of life. The garage, the service station, yes, the lowly roadside hot-dog stand, provided a means of livelihood for increasing numbers. The hotel business made handsome gains. Thirty years ago there was scarcely a good hotel outside the larger cities. Today you can be entertained about as comfortably in the Androy Hotel in Hibbing, Minnesota, as in the Hotel New Yorker on Manhattan Island.

Other lines of business also profited rather directly from the new highways. The cost of transport was reduced, especially for the short haul, and the volume of goods that could be profitably handled and quickly distributed over a wide area steadily increased. The farmer, who used to spend an entire day getting to and from market, could now make the trip in a couple of hours.

There were some cultural gains also. The modern consolidated school became feasible because of improved bus transport, and in many parts of the country gradually replaced the one-room school with its poorly-paid and poorly trained teacher, and its two- or three-mile hike to school through the winter cold. Rapid distribution of the mail, the newspaper and the magazine marked the passing of the old time

¹ Presented at the 28th Annual Convention, National Crushed Stone Association, Hotel New Yorker, New York City, January 29-31, 1945.

"hayseed." The theater, the concert, the art gallery were brought within easy reach of the farmer. Today, thanks to the paved road and the radio, you will have to comb the most backward of the backwoods to find an American citizen who is not as well informed as his city cousin about what's going on in the world.

Such has been the almost uniform history of our internal improvements. First resisted then grudgingly accepted, they finally are enthusiastically embraced. We usually find to our surprise that they contribute to the national wealth far more than what they cost. I have no idea how much, from first to last, was spent in building the American highway net work as we know it today. It has turned out, probably to the great surprise of those who first opposed its construction, that the cost is irrelevant. Our road system is a part of the warp and woof of our high standard of living, and without it life as we now know it would be unthinkable.

George Washington was an enthusiast for internal improvements—or what today we would call public works. He was especially interested in waterways and was one of the prime movers in the building of the Chesapeake and Ohio Canal. Abraham Lincoln saw the national utility of public works and made a notable speech on the subject in 1848 as a young Congressman from Illinois. President Polk had vetoed a bill for public works, holding Federal aid for the purpose unconstitutional, but he would have been against it anyway for he considered Federal assistance an invasion of States' rights, and besides, if any State wanted a road or a canal, that State, as the principal beneficiary, should build and pay for it.

Lincoln admitted some truth in the argument that while the burden of improvements would be general, their benefits would be local and partial, "involving an obnoxious inequality," to use Polk's expression. But, he said; "the converse is also true. Nothing is so local as not to be of some general benefit." He continued:

"Take, for instance, the Illinois and Michigan Canal. Considered apart from its effects, it is perfectly local. Every inch of it is within the State of Illinois. That canal was first opened for business last April. In a very few days we were gratified to learn, among other things, that sugar had been carried from New Orleans through this canal to Buffalo in New York. This sugar took this route, doubtless, because it was cheaper than the old route. Supposing benefit of the reduction in cost of carriage to be shared between seller and buyer, the result is that

the New Orleans merchant sold his sugar a little dearer, and the people of Buffalo sweetened their coffee a little cheaper than before—a benefit resulting from the canal, not to Illinois, where the canal is, but to Louisiana and New York where it is not. In other transactions Illinois will, of course, have her share, and perhaps the larger share, too, of the benefits of the canal; but this instance of the sugar clearly shows that the benefits of an improvement are by no means confined to the particular locality of the improvement itself.

"... A State may well say to the nation, 'If you will do nothing for me, I will do nothing for you.' Thus it is seen that if this argument of 'inequality' is sufficient anywhere, it is sufficient everywhere, and puts an end to improvements altogether."

What was true in 1848 is even more true today, nearly a century later. It becomes increasingly true as our economic and cultural life becomes more and more integrated. Pave a highway in Texas and you create a new demand for automobiles made in Michigan. Irrigate a tract of arid land and you benefit the people living on that land, but you also enlarge the market of the Chicago mail-order house. The developments of the Tennessee Valley Authority confer direct benefits upon the people of half a dozen States, but they also give jobs to workers in New York and New Jersey employed in the manufacture of radios, washing machines and electric refrigerators. It becomes more and more difficult to find an improvement of any kind, no matter how local it appears, which does not confer some benefits upon the nation as a whole.

As you read of the work of our Air Forces in this war you will not fail to notice a consistent pattern in their operations. Bombs are not dropped indiscriminately. They are aimed at factories producing the enemy's war materials, of course, but even more important they are dumped upon his public works. You put his water works out of business, wreck his docks and port facilities, destroy his highways, smash his canal locks and dams, blast his bridges and his power plants. Nothing can more quickly bring paralysis to a community or a nation than to destroy its public works, for these are at the hard core of military might. These are sources, under modern conditions, of national wealth as well as of that orderly, productive, disciplined living that forms the basis for effective armed resistance.

In our discussions of the future of public works development in the United States we have tended principally to stress the jobs their construction will

create in the immediate postwar period when, with demobilization at hand, jobs will be badly needed. Perhaps I have been guilty myself of overstressing this connection between public construction and jobs. That relationship is extremely important, yet we need to recognize that useful public works carry their own justification and would be needed even though their construction contributed nothing directly to a solution of the employment problem.

We need them because we want better streets and roads for pleasure and business, better schools for our children, hospitals for our sick, bridges for convenience, parks and playgrounds for recreation, sewage disposal plants to put an end to the continuing pollution of our streams that can only be characterized as a national scandal.

Some of the discussion about postwar public works seems to have missed the point by a wide margin by assuming some sort of conflict between public works and private business. Nothing could be more misleading, for the fact is that they complement each other. The important question is not what we can "afford" in the way of new facilities which create wealth and contribute to the public health and welfare, but rather how much that vitally needs doing we can really afford to leave undone.

We hope to see business expand after the war to a degree that will raise the volume of private employment to the highest level in our history. But in its expansive efforts business to a considerable extent will be conditioned by the facilities provided by society as a whole. It will need streets and well-paved highways, abundant sources of uncontaminated water, bridges to shorten unnecessarily long hauls, and we must also look to the health, welfare and contentment of its workers.

Have you ever participated in the efforts of your local Chamber of Commerce to lure new industries to your city? If so, what inducements have you held forth? Do you brag of your poor water supply, your poor schools, your broken pavements, your lack of facilities for recreation? You do not! You boast of your broad, well-paved streets, your ample supply of pure water, your excellent sewer system, your abundant supply of power, of your parks and playgrounds and the good fishing in the nearby river.

To say that we cannot afford the necessary things would be to subscribe to that counsel of despair which holds that America is completely built, that we have reached the limits of expansion and are all washed up.

On every hand you can see much that needs doing,

but the question now is, How much can we expect to get accomplished, say, in the first postwar year? That will depend upon the extent of our planning before the end of the war. As to the volume of the planning now under way or completed, I have some information.

Thanks to the new Federal-Aid Highway legislation, we can expect about a billion dollars' worth of road and street construction, with the Federal and State governments sharing the costs fifty-fifty. If you have not read the new highway act, I urge you to do so. You will find, I think, that it opens a new chapter in road development. It lays the basis for the creation of a truly interstate highway network. It permits the elimination of some urban traffic bottlenecks that are now the greatest obstacles to safe and efficient highway transport. It extends aid for the construction of local and secondary roads and looks toward their development into an efficient network in each State. It provides a new formula for grade-crossing elimination whereby that essential work can be expedited. We could scarcely ask for a better prescription so far as highways are concerned.

Next, so far as I can judge, direct Federal works, such as flood control, reclamation, river and harbor works and public buildings, will account for the expenditure of about a half billion dollars in the first postwar year.

Coming, finally, to State and local programs, we find that these units of government are now prepared to put about a billion dollars' worth of construction under contract within sixty days, if necessary. Included will be some street and highway work other than that eligible for Federal aid. Unfortunately, however, the States and cities tell us that they have on hand only about a third as much money as they will need for carrying out their programs.

Add the three items together and you get, as the cost of all public construction now in sight for the first postwar year, a figure of two and a half billion dollars. If that seems like a lot of money, it is well to remember that it is less than was spent for public works in the United States in the deep depression year of 1931.

What I have advocated, before Congressional committees and elsewhere, is a potential of at least five billion dollars' worth of public works construction in the first postwar year. And I arrive at that in this way: Normally, all construction, public and private, accounts for about ten per cent of the total annual

national income. If we are to have a total annual national income hereafter of at least 150 billion dollars—which is the figure frequently mentioned as that necessary to assure something like full employment—construction should account for ten per cent of it, or 15 billion dollars a year. And since public construction on the average accounts for a third of the whole construction volume, the share of Government—Federal, State and local—comes to a round five billion. Anything much less than that is likely to mean depression in the construction industry, and we are not likely to have a high level of national prosperity with so important a segment of the American economy idling in the doldrums. It is especially important that government should be prepared to put its work under contract immediately after peace comes, since there is little evidence as yet that private business is now formulating plans for any large construction program.

That the States, counties and cities are behind any reasonable schedule in their planning appears from a survey made last summer for a special committee of Congress by the Federal Works Agency. In addition to the plans already completed there are, of course, plans for a large volume of building in some lesser stage of development. The problem is to get plans in the design, or preliminary, or idea stage translated into working blueprints at the earliest possible moment. But here many local communities run up against the difficulty that they lack legislative authority, or money, to complete their plans. The constitutions of many States forbid their political subdivisions to accumulate financial reserves for emergency use, and at the same time they cannot pay for engineering surveys, working drawings, or site acquisition until the money is in hand to pay the full construction cost. In practice, this usually means that a bond issue proposal must be submitted to the voters at a special election. Only when the voters have approved can the bonds be sold, and not until then can the engineers and architects be put to work. A complicating factor is that financial institutions are often reluctant to buy municipal bonds until they know what the money is to be used for; they like to see the blueprints first. However desirable this cautious approach to public building may be in ordinary times, it is certainly time-consuming whereas the immediate necessity is for expedition. We cannot assume that time is always going to be on our side.

Fortunately, the Congress has provided a means

to short cut this process. The Baruch-Hancock report of a year ago suggested that the Congress might wish to appropriate funds in aid of local planning, and I had been urging the same thing for the last two or three years. The suggestion is embodied as Title V of the War Mobilization and Reconversion Act, approved last October, which authorizes the Federal Works Administrator to make loans or advances, from such funds as may be appropriated for the purpose, to the States and their political subdivisions for planning public works. The President recommended an appropriation of \$75,900,000 for the purpose, but as yet Congress has not seen fit to act. Of course, I think the matter is very urgent, and I am hopeful that we can soon put the program into effect.

It is not my thought, however, that every job for which plans are completed will be put into operation immediately at the end of the war. I think some very careful timing will be necessary. In certain communities it will be desirable, depending upon the status of employment, to put a large volume of public work under way quickly, while in other communities it may be equally desirable to hold back a little. If it appears that private business can provide all the jobs necessary in a given community, that would be a poor place to embark upon an extensive public works program which would come into competition with business for labor and material. Our object should be, among other things, to stabilize the construction industry, not to inflate it.

But, in any event, our planning will not have been wasted. If we have planned useful and necessary projects, and they are not immediately needed, we can simply lay our blueprints back on the shelf until the employment they will provide is needed.

Thus, our reserve shelf of plans would constitute a form of national social and economic insurance to be drawn upon, not merely in the immediate period of transition from war to peace, but in the years to come.

To the individual, insurance is a valuable and necessary asset. You do not consider the money you have paid out in premiums to have been wasted simply because your house has not yet burned down. Nor should we feel that insurance against national economic calamity is a waste even though the emergency is not yet upon us.

The stark fact is that national emergencies always do come, soon or late, and wise is that nation which is prepared for the fluctuating fortunes of peace as well as for war.

A National Program for Airport Construction¹

By WILLIAM A. M. BURDEN

Assistant Secretary of Commerce,
Washington, D. C.



MANY of you in past years have participated in airport construction most of which was a by-product of the pump-priming and work-relief programs and later defense programs.

We have now reached a point, however, when civil aviation is important enough in the National economy to have its need for public airport facilities considered on its own merit. In the years just ahead aviation inevitably must assume a position beside the rail, water, and road systems as an accepted and major form of transportation. The House of Representatives undoubtedly was conscious of this when it asked the Department of Commerce to prepare, through the Civil Aeronautics Administration, a report on the need for airports in postwar aviation. This report was submitted on November 28 and we believe it is adequate and sufficiently flexible to give our Country a sound network of airport facilities if carried out.

No phase of aviation activity has suffered more from conflicting reports and confusing statements than the subject of airports.

A great many people are under the impression that Federal aid for airport development is available now. This is not the case.

There are no funds available to the Civil Aeronautics Administration at the present time for Federal aid in airport development.

The only assistance the CAA can give is to render consulting advice on airport planning, site selection, and airport operational and management problems.

This CAA counsel is available to all civic bodies and anyone in need of it, but Federal financial aid depends upon future action by Congress in passing necessary legislation and appropriations for airport development.

• Current consideration by the Congress of various proposals for postwar construction of airports makes especially timely and significant the following discussion by Mr. Burden.

In our report to Congress we point out that our present system of airports in the Country is not adequate to serve the needs of aviation immediately after the war.

There are approximately 25,000 civilian aircraft in the United States today. We estimate that there can be 400,000 civil airplanes in this Country within 10 years of the war's end and that number can continue to increase.

In order to serve aviation and make possible this expected extensive growth in civil aviation the report proposes that this Nation construct approximately 3,000 new airports and improve approximately 1,600 of the 3,000 existing airports.

The estimated cost of the program is approximately one billion dollars, exclusive of land and airport terminal buildings.

Land values vary considerably with the location but it is estimated that an additional amount of \$250,000,000 would be involved in the acquisition of necessary land and the construction of airport terminal buildings, not including hangars, making a total cost for the entire program of approximately a billion and a quarter dollars.

Such a program could be spread over a five to ten year period for completion with the Federal Government and State and local governments sharing the costs on a proportion to be established by the Congress when passing the necessary legislation.

Public Roads Program Establishes Precedent

A well established precedent for the principle of cost sharing between the Federal Government and non-Federal public agencies for national development of transportation facilities is seen in the Public Roads program, which has operated on a 50-50 basis for many years with great benefit and satisfaction.

In order to effectuate a Federal aid airport development program the Civil Aeronautics Administration in its report to Congress recommended that the

¹ Presented at the 28th Annual Convention, National Crushed Stone Association, Hotel New Yorker, New York City, January 29-31, 1945.

Congress authorize an appropriation not to exceed \$100,000,000 annually, to be used in a program of Federal aid for the development of a nationwide system of public airports adequate to meet the present and immediate future needs of civil aeronautics.

It was also recommended that \$3,000,000 be made immediately available for preparatory work in order that an adequate airport construction program could commence as soon as appropriations are made.

It was recommended that such a program be conducted in cooperation with the States and other non-Federal public agencies on a basis to be determined by the Congress in the enabling legislation. The proportion of Federal contribution was to be determined by the Congress in the enabling legislation.

It was recommended that all projects for airport development undertaken under the program conform to standards as laid down by the Administrator.

It was recommended that the sponsors of such projects have the necessary authority and agree to protect the airport approaches and to insure the operation of all such airports in the public interest without unjust discrimination or unreasonable charges.

Airport is Basic Facility of Aviation

The airport is the basic facility of aviation, just as the highway is the basic facility of automotive transportation or harbor facilities are basic to water transportation.

By investing 25 billion dollars in roads during the last 25 years we have made it possible for the United States to become a Nation on wheels, with 32,000,000 motor vehicles in operation during normal times.

For a much smaller investment we can start the United States on its way toward becoming a nation on wings with all that implies in war and peace.

As a by-product of the war we have the necessary manufacturing facilities and a huge pool of potential pilots. There will be at the end of the war approximately 350,000 Army and Navy pilots and 150,000 civilian pilots and students. Also interested in flying will be two and a half million men trained by the armed forces in other aviation skills and an almost equal number of men and women employed in our aviation factories.

Add to these the quarter of a million students who are taking aviation courses in the high schools each

year and there is a total of 6 million prospective flyers.

There is no way to estimate accurately the number of these who actually will take up flying, but if only one out of four does so in the immediate post-war years, there will be a million and a half airport users plus millions of prospective airline travelers. A survey by the Crowell-Collier Company shows that 65 per cent of the people plan to travel by airline after the war. In addition, there are many persons outside these groups who even today are evidencing interest in aviation for business and pleasure.

Utility of Airplane Must be Increased

To realize the maximum economic and military benefit to our country from this vast potential, the utility of the airplane must be increased.

This will require more airports near the potential flyers' homes or places of business, near the recreational areas, the National Parks and other places to which they might want to fly.

The majority of small airports today were located from the standpoint of low development cost rather than convenience to the inhabitants of the communities they serve.

Without overlooking the importance of air transports, the sale of personal aircraft offers the brightest hope for a mass market which will maintain even a reasonable fraction of our present 20 billion dollar a year aircraft manufacturing industry.

Preserving a nucleus of this industry is important both to defense and the national economy, for it can provide a substantial source of employment in peace, and the weapons of war should we ever need them in a hurry.

The contribution which airports for personal flying can make toward this goal, and toward training civilian pilots as a reserve of airpower, invests them with national interest. That is why this plan, as will be seen, calls for 2,900 of the 3,050 new airports in the categories especially suitable for personal flying.

A greater share of the total cost of the program, however, would go for the construction or improvement of airports required to bring or continue the benefit of scheduled air transportation to all sections of the population, although many of these fields would also be available for personal flying.

These terminals would, in many cases, serve as reserve bases for the armed forces—at the present

time, a majority of our large civil airports are used by military or naval aviation.

To provide facilities adequate to the requirements of places now designated as air carrier stops, it will be necessary to improve 174 airports which are deficient, in terms of transport craft now in use, in number and length of runways, clearness of approaches, taxiways, parking and servicing aprons; or other features.

As for the 678 locations named in applications for Certificates of Convenience and Necessity pending before the Civil Aeronautics Board, only 93 have suitable airports. Improvement projects would be required at 385, and new fields would have to be constructed at 200.

Communities of 25,000 population and less show the greatest lack of airport facilities. There are deficiencies to a lesser extent in most of the larger cities.

For private and local commercial flying needs, our present airport system is deficient in the large cities in that it offers too few landing areas inconveniently located, in relation to the population—there are 438,585 persons per airport in cities of more than 500,000.

In the metropolitan areas there is a need to separate the non-scheduled private flying activities from the ever growing scheduled air transport traffic and several large terminal airports have found it necessary in the interest of safety to exclude private flying, even before the war.

In many of the small towns as I have pointed out there are no airports to accommodate either private flying or airline service.

The provision of airports at such places not only will fill existing needs but will serve to stimulate widespread aviation interest and employment in these areas through the variety and number of commercial activities that airports attract.

Our studies have indicated that the United States will require a total of approximately 6,300 civil airports of all classes and sizes to serve adequately the transport and private flying which can be reasonably expected in five to ten years after the war and to foster its growth.

The estimated cost of the development of such a system of airports exclusive of land and buildings is approximately a billion dollars, which can be

roughly broken down into three categories. First is the preparation of the site which includes clearing, grubbing, grading and surface conditioning. This item alone would require \$525,000,000 or 52 per cent of the total cost.

The next item is paving which includes runway, taxiway, and apron paving, estimated to cost approximately \$400,000,000 or 40 per cent of the total.

The third item is the lighting, radio and miscellaneous work which is estimated at approximately \$75,000,000 or 8 per cent of the cost.

These estimates are based on present airport construction practice. However, CAA sponsored studies at Princeton University indicate that the vibrations of some of our big new planes like the B-29 may have serious effects on the bearing properties of soils, possibly requiring airport paving twice as thick as that which has been used up to now.

A National airport system is so essential that its development cannot be laid away on a shelf of public works plans for use only in a period of widespread unemployment.

However, airport development as part of any public works program meets all of the fundamental requirements of public works; since it would provide continuing employment opportunities, it would produce facilities which would be of immense value to the national defense, it would provide useful improvements of permanent value to the community, it would encourage further investment by private interests, it would protect the general health and safety, and it would contribute to the general welfare of the Country.

Action Depends Upon Congress

The undertaking of a Federal aid airport development program depends, of course, upon action by the Congress.

Since the new Congress has opened, several bills which would establish such a program have been introduced.

I am sure that our Congress is aware of the need for improvements to our existing system of airports and will give very careful consideration to such legislation.

With an adequate National airport system civil aviation can grow to a point where it becomes a substantial segment of the Nation's economy.

What the Seabees are Doing for You¹

By C. A. SANBORN

MMIc, USNR Instructor in Rock Crushing
Naval Construction Training Center
Camp Endicott, Davisville, R. I.



MY SUBJECT this afternoon is "What the Seabees Are Doing for You"; and by this I mean for all of you, not just operators, but owners as well; in fact, the entire crushed stone industry.

I realize that a number of you would like to hear about "Tojo," "Tokyo Rose," "The Canal," "Washboard Charlie," or "Pistol Pete," but with the

great progress your sons, brothers, and friends have made in the Pacific, to speak of "Guadalcanal" today would sound like "Valley Forge," "Gettysburg," "Manila," or "The Battle of the Marne."

One might add here and there a sea story or two to the message I want to bring to you, but you veterans of World War I, and no doubt there are men here who are veterans of World War II, have your own memories and sea stories. Those of you who have been unfortunate enough to have been shot at, and to those of you who fortunately enough have not been shot at, you can get these sea stories from your own loved ones and friends when they return. Their tales, stories, and experiences will be much more interesting to you than any I could tell.

I have since last August been located at the Naval Construction Training Center at Camp Endicott, Davisville, Rhode Island. This camp is the Eastern Headquarters for "Seabees" in the United States. The new men assigned to this base are not only taught how to defend themselves, but are taught one of the 39 technical training courses.

Men who have had a trip across as well as "Boots" are required to go through school. For the new men it is a new experience and in most instances it means a new occupation. The veterans are taught the most modern or easiest way of doing the job they have been doing while across.

Our new students come from every walk of life, and range in age from 17 to 50 plus. Some are high

• Hundreds of men through the medium of the United States Naval Construction Battalions are receiving intensive training in the technique of producing crushed stone. When these men are released from the service exceptional opportunity will be afforded the industry to obtain highly skilled personnel. MMI/C Sanborn gives us a message of the utmost importance.

school kids, others have Masters Degrees from some of our leading universities; a few are common laborers with little education; others are master mechanics, or radio repairmen, and we even get quarry and crusher men. Still to us instructors it makes no difference whether the pupil is a millionaire's son, an orphan, a painter, a cook, or a Fuller brush salesman, they are just "Baby Bees" to us. There is a place for everyone in the "Seabees" whether he be "Baby Bee" or some "Old Salt" too old to ship again.

A man may come from Bangor or "Diego," from a great city like this or from the plains of Kansas, from cold Duluth or sunny Key West, yes, and a few have come from Texas—which reminds me about Texas. A man may call a Texan a filthy name, knock him down, borrow his clothes, even drink his liquor, but don't ever tell a Texan his state is no good or you will find yourself so thoroughly beaten up you will think you have been run through a small jaw crusher and the pieces separated over a vibrating screen. I would suggest to the various Chamber of Commerce managers of California and Florida to go to Texas and take a post graduate course.

The faculty at "Endicott University" is composed of 7 officers, 3 warrant officers, 35 chief petty officers, and about 500 petty officers. Our officers, or "Board of Directors," are all qualified graduate engineers, and many of their names are well known to your industry. I would not be far off from actual figures by guessing that over fifty percent of all the instructors have had an average of two years of college; that 90 percent of them are high school graduates.

I would guess the average age of the instructors to be about 38, and with probably 15 years actual experience in some one line of construction or mechanical work.

To prepare ourselves for this job, the Navy has set out for us as instructors—we too are sent to school; yes, an Instructor's School, or taught how to teach school to anyone, whether he wants to learn or not.

¹ Presented at the 28th Annual Convention, National Crushed Stone Association, Hotel New Yorker, New York City, January 29-31, 1945.

The majority of instructors are limited duty men, or men who have been overseas and are recuperating from wounds or sickness, resting up, but performing a much needed duty, quite necessary for final victory. Each and every day finds one or more of these men going out to sea again. However, every man and officer in the Technical Training Department has been overseas, some have already made two trips.

The knowledge and experience gained from a trip across seas, linked with the civilian construction life, plus his Navy training, should, and I believe you will agree with me, qualify a man to teach you or your son the "Can Do" of the "Seabees."

So much for the instructor. What are we teaching the students and how will it help you?

A new class, consisting of 39 groups, report to the Technical Training Department each Monday morning. The men report on or before 0745 (and I don't mean 0746), go to noon "Chow" at 1130, return at 1245 and "Knock Off" at 1700. This schedule is carried out from Monday through Saturday, and for your information there are no holidays in the Navy. The time spent in class is 144 hours or equivalent to 1½ semesters of single credit high school work.

Each Monday morning we are assured of seeing new faces. Some of these men have come to avenge the death of a son or a loved one, others are youngsters, yes, hundreds of them who may not need a razor until this great war is over.

Rock Crushing School

Let us review the Rock Crushing School, a subject with which you all are familiar. You will see that the men are given a general all around course in rock crushing and repairing in the 3 weeks we are allotted. The class will consist of from 7 to 12 men. The boys and kids stop being "Boots" and are now called men because they are expected to turn out a full day's work.

In my last class a young lad came up to me, he had been greasing the plant, his hands were very dirty and full of grease, he said, "Look, Mr. Sanborn," and I replied, "What is the trouble (thinking he might have injured himself), but no, he was all in one piece. He then replied, "This is the first time in my life my hands have ever been dirty," and I am glad to state that he finished second in his class—a fine man, willing worker, good head, yes, and mighty proud of his dirty hands.

We have 2 jaw crushers, both 10 x 24's, identical with the exception—one plant is indoors the other

out. Our inside plant is for instruction only. The men dismantle and erect this plant when weather prohibits us from working out of doors. Our outdoor plant is used principally as a crushing unit where the men are taught how to feed and take care of the machine.

The first day the men are introduced to the instructors, get acquainted among themselves, and an outline of the course is given. Then there is an inspection trip of the two crushers, and the quarry, and the men are told what is expected of them.

After the first day we get down to business. A lecture of 30 minutes to an hour is given each morning and afternoon, then 3 hours of actual operating, feeding, or repairing the crusher.

Men are staggered so each man gets a new job daily. We have a pusher or foreman, a motorman, screen man, truck driver, yeoman, and the others feed the crusher. With this method we determine who are the leaders and who are the followers.

The men are graded each day and given an examination each Saturday. After the examination they are not only lectured on safety-first, but shown how to avoid being hurt or injured, because a sick or injured man is a liability to the Navy while war is going on.

One would think that with all these "green hands" there would be a bad accident record. This is not so. There was only one loss of time accident last year—a bruised and broken index finger—the result of "Child's Play" not in the line of duty. Our record for this year has been perfect. This proves our safety-first lessons are worth while.

Each morning and afternoon we have a recess and this time is spent by the men reading the different pamphlets and booklets we have acquired from practically every crusher manufacturer in this country. We have found this a very successful method for the man to acquire knowledge about each and every type of crusher, screen, conveyor, or elevator. I do want to thank all of you manufacturers for your cooperation in sending these pamphlets and various booklets to us. They are indeed a great help.

Which reminds me—if any of you crusher manufacturers have any spare movie films of any kind of crusher in action, we at the Rock Crushing School would certainly appreciate them.

After the meeting I will be only too glad to give you my address. I think this is the best method for us to receive them because if we have to requisition them through Washington—well, you know what I mean.

The men are taught how to build ramps, loading platforms, foundations for the crusher and the bins, how to uncrate, set up, dismantel, and recrate the entire plant.

Lubrication being a mighty important factor, they learn the grease-gun, different types of fittings and cups, where, when, and how to grease, and why.

About repairing, before any repairs are made each man knows every part of the crusher and elevator, can point them out on a blue print or "blow up" picture. After he has learned these parts he is allowed to repair or dismantle the crusher we have installed on the inside.

If by chance we do break down at the outside plant they are the ones who actually do the repairing with the instructor acting only in a supervisory capacity.

The men change buckets, splice belts, replace chain links, remove idlers, or shafts, gears and pulleys. They remove and replace the jaws, cheeks, toggle, tension rod, change screen sections, and clean the "cat pit." As is the general practice in the Navy—we have everything "spick and span" each and every Saturday morning for Captain's Inspection. Sometimes he shows up—sometimes he doesn't, but just the same we clean up. And why? We are obeying a command.

Cleanliness is one of the things your Navy is famous for, and the "Seabees" take as much pride in their crushers, bulldozers, welding machines and typewriters as any "Old Salt" ever did about his "Battle Wagon" or a pilot does about his plane.

All of these various repair jobs are done before any lecture is given on the subject. The reason for this is to find who has the initiative, mechanical ability, or ingenuity, and as I have said before who are the leaders, and who can think for himself. After these repair jobs are completed a lecture is given them and they are shown the proper procedure.

All of our stone is not loaded by machine; one morning a week the men actually load the truck by hand, haul it to the crusher, then perform their assigned duties. They are also taught how to use a sledge, a shovel, a crow-bar, and the other common tools found around a crusher.

These men are also taught the different characteristics of various aggregates, namely—granite, trap-rock, limestone, field stones, gravel, and a couple of which you are unfamiliar with—volcanic rock and coral.

Coral is a mighty important thing with the "Sea-

bees." We teach them all about it, where, when and how it can be used. Explain the different kinds: The dry coral bank, wet coral pit, and about finger coral.

Without a doubt the "Seabees" know more about the various uses and characteristics of coral than any engineers in the world today.

They are also given a short trip with the air drillers, wagon drillers, dynamiters, and the well drillers. These other groups have their own instructors, but we feel a little inoculation of these subjects can do no harm.

We take the class to a local gravel plant, spend the afternoon there, study conveyors, automatic feeders, gravel washing, and sand separators. Also, we go to the Navy Supply Depot and see the different crushing plants crated read for shipment overseas. We teach them how to uncrate these machines, to save every nail or spike, every board, every nut or bolt that these heavy crates are made of, because a "Seabee" never wastes anything. There are several brands of crushers here and we explain the few little differences in each.

The main subject we teach is the jaw crusher because that is what the "Seabees" have adopted; therefore, 90 per cent of our time is spent on the jaw. However, we do lecture on rolls, gyratory, cone, and sphere to show the men the different kinds and how they run or operate and the purpose of each.

We do not claim that these men are well enough trained to step into your commercial plant as a master mechanic. We do know from actual experience, that the graduates of such a course are better qualified to step into their jobs when they hit "Island X," and get their first look at "Tojo" than the untrained men who were in the first few battalions. So the time spent training these men is paying big dividends for you, and is positively bringing "V" Day closer and closer.

Courses Beneficial to Crushed Stone Industry

So far I have only talked about the Rock Crushing School. At the rate we are going we are turning out about 400 men a year with rock crushing experience. In checking over the list of the 39 courses 22 of them are directly beneficial to the crushed stone industry. They are as follows:

Blacksmith
Communications
Water Procurement or Well Drilling

Diesel Engines
Fuel and Water Piping
Earthmoving Equipment
Electricity, Generators & Motors
Fire Fighting
Gasoline Engines
Heavy Equipment Repair
Huts & Carpentry
Lubrication
Machine Shop
Military Mapping, Surveying & Drafting
Rigging
Rock Crushing
Sheetmetal
Storekeepers
Truck Driving
Welding
Electric Diesel Generator
Yeoman

The enrollment in these 22 schools is about 450 a week or 22,500 men a year. This training program has been in effect about 2½ years; therefore, to date the "Seabees" have trained nearly 50,000 men that can fit into your industry, some day in the future.

The enrollment in the department is 736 a week or over 35,000 a year. So if your son, or friend, or some of the boys from your company are in the "Seabees," no matter in which one of the 39 courses they have been or may be enrolled they have been or are being trained, and this training should stick to their "ribs" for years and years to come.

You may wonder why there are 535 instructors for 736 new students each week. There are 80 men enrolled in the Earthmoving School and 14 in Heavy Equipment or Crane and Shovel work. Each student is learning how to operate a tractor or bulldozer, a dragline or shovel. Each machine has a well qualified and experienced instructor, so a great number of the 736 men are receiving personal instruction.

The schooling and instruction does not end upon graduation from Endicott. Through all their "Seabee" life these men will always be under the personal supervision of men who have had years of civilian construction experience and completed a "Hitch" across seas.

When you go to hire a man in the Post War Era—you will be way ahead of the others if you hire an ex-"Seabee" because he has been trained, has stuck at his job. This "Seabee" will also have helped his ship-mate at his job; as I have said before, he has not a one track mind.

Now where will these men fit? In the future you will want a man who knows something about radio as well as electrical work. Your quarry foreman will no doubt have a "Walkie-Talkie" in his pocket. The superintendent will just sit in the office and speak to him.

Or you may find need for a man with experience in soil mechanics, a bulldozer operator, a diesel or gas engine repair man, and for those with gravel pits one of our barge or pontoon men will come in mighty handy.

Yes, and I might add that even "Chic Sales" could find a well qualified assistant for "The Specialist" of "Privy Fame."

Besides all this, he can think for himself, has been taught how to look out for himself, and his "Bud-dies." He knows all the safety rules connected with his work. Plus this he knows how to dig and use a "Foxhole," and above all how to stick by his "Guns" when being shot at and still perform his duty.

I might add too, that those of you who need clerks or stenographers by all means hire a "Seabee" yeoman because he is so used to making "Umpteen" copies of every order that you will not embarrass nor surprise him when you want to file some report or letter with Washington.

When these men graduate they are ready to be shipped across. They are the men who, linked with those experienced men who lead them, are the "Seabees" of today. They "Can Do;" they can build or fight, and without a doubt are the finest construction men in the world today. The reason they are doing unheard-of engineering feats every day is that they have been technically trained and are physically and mentally fit.

The Navy has not forgotten its officers either. Each officer who returns from overseas gets a thorough review of each course in the Technical Training Department. Their classes last from 30 minutes to hours, and it makes no difference whether he be full Commander or Ensign, they all attend.

All men in Officer Training School also get the above training before they are graduated, or as soon thereafter as possible.

I am not in the Recruiting Service, but I can say for your good and for the welfare of your men who now work for you, and have "1-A" cards, and the postman has delivered that famous "Greetings"—advise them to see their local "Seabee" Recruiting Officer. I am sure you and they will both benefit by it and when they return they will be better men for you, because they will have kept at their trade, learned things

from others, carried out orders, and learned to issue them as well.

One of the mottoes of the "Seabees" is "We Build—We Fight." I truthfully think it should be changed to "We Build—We Fight, and We Prepare For the Future." Do not worry about "GI Mac" or "Joe" in the future, he is a better sailor, marine or soldier than any Uncle Sam has ever had before, because they are trained men. He can take very good care of himself against all the vicious atrocities of Hitler or Hirohito, and I assure you he will take very good care of his rights when he comes home, whether they be politics, labor, or finance. His views and ideas are being incubated while he lies in a slimy "fox-hole," or floats on a life-raft, or lies on a hospital cot. So do not worry about "GI Mac" or "Joe" in the future.

There is no need for me to tell you that we feel we are doing our part. All we men worry about is "Are you doing your part?" Of course we all know that "There is a War going on," and we all hate to be reminded of it. Let me say a word for "GI Mac" and "Joe" and "Jane" too.

When was the last time you wrote or had your secretary write the boys in Service from your company? Did you remember them at Christmas? You do have their birth records—do you send them a card or small gift on their birthday?

I assure you it is not the cash value of the gift or letter, but it is a word of good cheer from "The Boss," "The Old So and So." If you do not write, do so because there is nothing in this world so depressing as a mail call where the mail clerk does not call your name. So write to them!

To you men of industry, the "Seabees" are training your son and your neighbor's son for the future. Yes, 35,000 or more of them a year. Boys who are becoming men, and men, too. All of them have been technically trained and some of them will come to the crushed stone industry for a job after final victory, and they will come to you prepared.

It has been as tough or tougher for me to stand before you as it was to look at "Tojo," one gets use to "Tojo." So in closing I would like to quote just one little poem. Its Title:

"Then and Now"

"Guadalcanal—it meant nothing to me
In my school days of long ago,
But a coral isle in the southern sea
Where the jungle was high and low.

But now, since my "Buddie" sleepeth there,
And the jungle has claimed my pal,
I always ask God in his infinite care
To keep vigil O'er Guadalcanal."

State Highway Departments Requested to Designate Routes

EACH State highway department has been requested to proceed at once with a designation of routes for inclusion in the National System of Interstate Highways, it was announced recently by Thomas H. MacDonald, Commissioner of Public Roads. The designation is to be made in accordance with the Federal-Aid Highway Act of 1944 which requires that: "There shall be designated within the Continental United States a National System of Interstate Highways not exceeding forty thousand miles in total extent so located as to connect by routes as direct as practicable, the principal metropolitan areas, cities, and industrial centers, to serve the national defense and to connect at suitable border points with routes of continental importance in the Dominion of Canada and the Republic of Mexico."

The act requires that: "The routes of the National System of Interstate Highways shall be selected by joint action of the State highway departments of each State and the adjoining States, as provided by the Federal Highway Act of November 9, 1921 for the selection of the Federal-aid system."

Under this provision, the Administrator of the Federal Works Agency is authorized to approve routes proposed by the State highway departments for inclusion in the National System of Interstate Highways.

In making the announcement Commissioner MacDonald said, "Designation of the system is an important step toward launching a large post-war highway program. Construction of such a system is an outstanding feature of the long-range highway program. The recent Federal legislation authorizes \$225,000,000 for the Federal-aid Highway System and \$125,000,000 for urban highways in each of the first three post-war fiscal years. These funds will be available for improvement of the National Interstate System and other highways."

In requesting early action on the tentative designation of a system, Commissioner MacDonald directed the attention of the State Highway Departments to the report entitled "Interregional Highways" published as House Document 379, 78th Congress, 2nd Session and particularly to the Interregional Highway System recommended therein by the National Interregional Highway Committee with the

(Continued on Page 22)

Better Farm-to-Market Roads¹

By FRED BRECKMAN

UNDER the provisions of the Postwar Federal-aid Highway Act, passed at the last session of Congress, \$150,000,000 of Federal funds will be available annually during the first three years after the war, for the improvement of secondary highways. This includes farm-to-market roads and roads traveled by the school bus and the rural mail carrier.

Acting in accordance with this legislation, state and county officials are planning the biggest program for secondary road construction and maintenance in the nation's history, constituting a milestone in the long campaign of the Grange and other farm organizations for good roads.

Matching of Federal Funds

The Federal-aid funds will need to be matched by state and county moneys, thus providing a total of \$300,000,000 annually for secondary road improvement. The local road improvement provision is part of a general highway bill allotting \$225,000,000 for use on the Federal-aid system, and making available \$125,000,000 for improvement of through routes and by-pass roads in and around cities. The bill sets aside a total of \$500,000,000 for each of three years for these purposes.

The act will be administered by the Public Roads Administration, and the funds, with certain exceptions, become available when the President or the Congress declares the war emergency is sufficiently over to permit attention to sorely-needed domestic problems.

Large Mileage Remains Unsurfaced

According to figures compiled by the Public Roads Administration, at the end of 1941 the total mileage of local rural roads in the United States was 2,405,894 miles. Of this total, 1,474,445 miles remained unsurfaced.

It is over these roads that the nation receives its food supplies, and they are therefore invested with a national interest. No one would argue that this entire road mileage should be improved in accordance with the standards laid down for the construction of highways carrying heavy traffic. But most

certainly the greater part of these roads should be given an all-weather surface, besides being properly drained and graded where necessary, and made safe for driving. While the improvement of strictly local roads is a local responsibility, it is legitimate to devote Federal funds toward the construction of the principal secondary and feeder roads.

The Federal-aid System

For nearly a quarter of a century the rural people have willingly agreed that the roads comprising the 7 per cent of Federal-aid highway system should be improved first. This system contains approximately 230,000 miles, which is about 7 per cent of our total road mileage. Approximately 100,000 miles of this system now have high type surfaces. About 10,000 are non-surfaced. From 1917 to 1943, both inclusive, the sum of \$3,890,668,000 was appropriated by Congress for Federal-aid highway work.

It is to maintain and surface this vast mileage that the new secondary road funds will be spent. Officials in Washington see this as placing a great responsibility upon the local and state highway officials, first properly to plan the program of rural roads, and second, to see that these road funds are wisely spent.

Rules and regulations for the guidance of counties and states in the use of these funds are being prepared by the Public Roads Administration, which has final administrative responsibility for the approval of plans by counties and states. Commissioner Thomas H. MacDonald has said that these rules will be flexible enough to allow local officials the widest possible latitude, but he also has indicated that he believes local units of government should accept the initiative in developing their programs.

County Groups to Participate

It is believed, therefore, that county groups should arrange at once to consult with representatives of the respective state highway departments, looking toward the day when actual construction may begin.

While the Public Roads Administration is not expected to stipulate the matching percentages as between states and local governments, leaving this question to be settled within the states, it is understood that Federal officials generally favor arrange-

¹ Reprint from the National Grange Monthly, Springfield, Mass.

ments whereby the counties and townships join in contributing funds to the road construction pool.

Reports reaching Washington indicate that many states will require revision of state laws to permit cooperation in these tasks between the state roads department and the local units of government, and generally to harmonize state laws with the national legislation to enable the states to accept the Federal funds. Civic and farm groups are interesting themselves in this situation, so that elected and appointed officials need not share the whole responsibility in obtaining access to the Federal funds.

The language of the legislation says that secondary road funds shall be limited to the principal secondary or feeder roads "selected by the state highway departments in cooperation with the county supervisors, county commissioners or other appropriate local roads officials, and the Commissioner of Public Roads."

The new Federal appropriations for secondary roads, when available, may be spent in towns of less than 5000 population.

State Highway Departments Requested to Designate Routes

(Continued from Page 20)

concurrence of the Public Roads Administration. He also directed attention to the recommendation concerning the advisability of a further designation of circumferential and distributing routes within and around the larger cities connected by the system. It was made clear that in presenting these recommendations for consideration the Public Roads Administration intends in no way to limit the freedom of action of the States in selecting routes for tentative designation.

In reaching a decision on the routes to be tentatively designated each State highway department is required by the law to act jointly with the highway departments of adjoining States.

The State highway departments are asked to submit to the Public Roads Administration by July 1, maps showing the routes tentatively designated accompanied by data indicative of the merits of these routes.

On the basis of these proposals a system conforming to the 40,000-mile limitation will be designated by subsequent agreement of the States and the Public Roads Administration and submitted for approval by the Federal Works Administrator.

Outstanding State Obligations for Highways Total \$1,618,049,000

State highway obligations outstanding December 31, 1943, totaled \$1,618,049,000, according to figures recently released by the Public Roads Administration. The purposes for which these obligations were incurred include:

State highways	\$975,213,000
Special state issues for bridges and grade crossings	152,090,000
Special construction issues, state highway share	42,970,000
State issues for toll roads and bridges.....	156,247,000
State issues for reimbursement.....	98,425,000
Reimbursement obligations assumed	182,512,000
State issues for county or local roads and bridges	10,592,000
	<hr/>
	\$1,618,049,000

Against the above obligations there was held in sinking fund reserves on December 31, 1943, the sum of \$208,903,437.

Bonds of interstate toll authorities and others primarily of urban or local character are not included. Among those not included are: Port of New York Authority (New York and New Jersey), \$181,046,000; Delaware River Joint Commission (Pennsylvania and New Jersey), \$37,000,000; Lake Champlain Bridge Commission (New York and Vermont), \$1,219,000; Golden Gate Bridge District (California), \$34,600,000.

PRA reports that during the calendar year, 1943, additional bonds amounting to \$30,721,750 were assumed by states as follows:

Alabama	\$4,178,000	New York	\$12,000,000
Florida	2,446,250	South Carolina..	150,000
Iowa	2,750,000	Tennessee	4,797,500
Louisiana	1,100,000	West Virginia...	3,000,000
New Hampshire ..	300,000		

Disbursements on account of debt service in 1943 aggregated \$180,907,265, of which \$122,007,813 represented retirement of principal, the balance covering interest, administration and premiums paid on called bonds.

Current receipts during 1943 applicable to debt service amounted to \$175,943,758, of which \$142,902,354 was provided by highway user taxes, \$12,080,250 by highway user tolls, \$4,777,202 paid from sinking funds, largely contributed in earlier years by highway users, and \$12,146,236 derived from proceeds of refunding issues. Other miscellaneous receipts, including general property taxes, provided \$4,037,716.

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